

What we claim is:

1. Apparatus for removing ionisable impurities from an electrolyte solution in an electromembrane device, comprising means for conveying at least one stream of electrolyte solution between a cathode and an anode of the device, and means for transferring selected ions from the electrolyte solution into a separate stream upon application of a current.
2. Apparatus according to Claim 1, wherein the means for transferring selected ions comprises an anion exchange membrane adjacent the cathode or a cation exchange membrane adjacent the anode or both.
3. Apparatus according to Claim 2, wherein each membrane is in contact with an electrode.
4. Apparatus according to Claim 2, wherein each membrane is in electrical contact with an electrode by means of a liquid permeable ion conducting material.
5. Apparatus according to Claim 4, wherein the liquid permeable ion conducting material comprises at least one of an ion exchange resin, ion exchange fibres or an ion exchange foam.
6. Apparatus according to Claim 5, wherein a liquid permeable anion conducting material contacts the cathode and a liquid permeable cation conducting material contacts the anode.

7. Apparatus according to claim 1, wherein the ion transfer means for transferring selected ions from the electrolyte solution to the separate stream is adapted to transfer anions only.
8. Apparatus according to Claim 1, wherein the ion transfer means for transferring selected ions from the electrolyte solution to the separate stream is adapted to transfer cations only.
9. Apparatus according to Claim 1, wherein the ion transfer means for transferring selected ions from the electrolyte solution to the separate stream is adapted to transfer both cations and anions.
10. Apparatus according to claim 1, wherein the selected ions are transferred into a concentrate stream.
11. Apparatus according to Claim 10, wherein the concentrate stream contains ions removed from a feed liquor by the electromembrane device.
12. Apparatus according to claim 1, wherein the electrolyte solution comprises distilled water.
13. Apparatus according to claim 1, wherein the means for conveying at least one stream of electrolyte solution comprises means for conveying a first stream between the cathode and the anode in contact with the cathode, and means for conveying a second stream between the cathode and the anode in contact with the anode.

14. Apparatus according to claim 1, wherein the means for conveying at least one stream of electrolyte solution comprises means for recirculating the electrolyte solution between the cathode and the anode.
15. An electromembrane device, including means for removing ionisable impurities from an electrolyte solution, the means comprising a means to convey at least one stream of electrolyte solution between a cathode and an anode of the device and means to transfer selected ions from the electrolyte solution into a separate stream upon application of a current.
16. An electromembrane device according to Claim 15, wherein the device is an electrodeionisation device or an electrodialysis device.
17. An electromembrane device according to Claim 15, wherein the device is part of a liquid waste treatment system.
18. An electromembrane device according to Claim 15, wherein the device is part of a waste fluoride treatment system.
19. A process for removing ionisable impurities from an electrolyte solution in an electromembrane device, comprising conveying at least one stream of electrolyte solution between an anode and a cathode of the device, applying a current to the device to transfer selected ions from the electrolyte solution to a separate stream.
20. A process according to Claim 19, wherein the selected ions are anions only.

21. A process according to Claim 19, wherein the selected ions are cations only.
22. A process according to Claim 19, wherein the selected ions are both anions and cations.
23. A process according to Claim 19, wherein the separate stream is a concentrate stream.
24. A process according to Claim 19, wherein the electrolyte solution is distilled water.
25. A process according to Claim 19, wherein the electrolyte solution is recirculated between the cathode and the anode.
26. A process according to Claim 19, carried out as part of an electrodeionisation process or an electrodialysis process.
27. A process according to Claim 19, carried out as part of a liquid waste treatment process.
28. A process according to Claim 19, carried out as part of a waste fluoride treatment process.